

# Trusting others: The polarization effect of need for closure

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### Abstract

Because trust-related issues inherently involve uncertainty, we expected individuals' social-cognitive motivation to manage uncertainty – which is captured by their need for closure – to influence their level of trust in others. Through the results of six studies, we showed that higher need for closure was related to more polarized trust judgments (i.e., low trust in distant others and high trust in close others) in the case of both chronic and situational need for closure. Moreover, participants with high need for closure did not revise their level of trust when they received feedback about the trustees' actual trustworthiness, whereas participants with low need for closure did. Overall, our findings indicate that polarized (either high or low, as opposed to moderate) and persistent levels of trust may serve people's seizing and freezing needs for achieving cognitive closure.

*Keywords: Need for closure, trust, uncertainty, interpersonal closeness*

### Trusting others: The polarization effect of need for closure

Trust is indispensable to all social relations. The presence of trust results in important benefits to both trustors and trustees at multiple levels (Kosfeld, Heinrichs, Zak, Fischbacher, & Fehr, 2005). For example, at the individual level, trust helps people to feel more secure (Erikson, 1950), to feel less unhappy or less maladjusted (Rotter, 1980), and to cope better with distress (Schill, Toves, & Ramanaiah, 1980). At the interpersonal level, trust enhances cooperation (McAllister, 1995) and information sharing (Butler, 1999). At the organizational level, trust reduces transaction costs (Barney & Hansen, 1994) and facilitates alliances (Uzzi, 1997). Finally, at the societal level, trust fosters solidarity (Misztal, 1996), prosperity (Fukuyama, 1995), and economic growth (Knack & Keefer, 1997; Zak & Knack, 2001). Consequently, many scholars (e.g., Arrow, 1974; Luhmann, 1979) conceptualize trust as a key lubricant of social life.

However, although justified (i.e., non-violated) trust benefits all parties involved, trust also entails the risk of betrayal. Trust implies a situation in which one person (i.e., the trustor) chooses to rely on another (i.e. the trustee) without knowing what the exact consequences of doing so will be (Gambetta, 1988; Huang & Murnighan, 2010). Whether the trustee is a family member, a friend, or a business partner, it is always uncertain *a priori* whether one's trust in that person will prove to be justified. This fact raises the question of how individual differences in handling this uncertainty affect individuals' trust in others. In the present research, we argue and show that individuals' level of trust in others is a function of their cognitive-motivational differences in managing ambiguity and uncertainty. These differences are captured by individuals' varying levels of *need for closure*, which refers to a chronic or temporary tendency to avoid or to feel the need to resolve uncertainty and ambiguity (Kruglanski & Webster, 1996). We further reason and demonstrate that the effect of

individuals' need for closure on trust is contingent upon their interpersonal closeness with the trustee.

## **Trust**

Trust is defined as an individual's willingness "to accept vulnerability based upon positive expectations of the intentions or behavior of another" (Rousseau, Sitkin, Burt, & Camerer, 1998, p. 395). Vulnerability stems from the trustor's risk of being taken advantage of due to the fact that the trustee's future behavior is uncertain from the perspective of the trustor (Huang & Murnighan, 2010; Rousseau et al., 1998; Zand, 1972). This risk is an essential component of trust; in fact, if the trustor could know or control the trustee's future behavior with certainty, trust would not be needed (Gambetta, 1988). Accordingly, trust requires a "leap of faith" that bridges the gap between what the trustor currently knows about the trustee and what the trustor needs to know in order to rely on the trustee (Hardin, 2002).

Although bestowing trust naturally implies the possibility of regret in the event of a breach of trust, individuals nonetheless need to exhibit, and indeed do exhibit, a great deal of trust (Baier, 1986) due to the fact that social uncertainty is ubiquitous (Yamagishi, Cook, & Watabe, 1998; Yamagishi & Yamagishi, 1994). Indeed, most social interactions would be too complex to handle without some amount of trust. Hence, by reducing complexity through the "leap of faith" mentioned above, trust functions as a solution to problems caused by uncertainty about future contingencies of others' behavior (Kollock, 1994; Luhmann, 1979; Yamagishi et al., 1998). By putting some level of trust in others, individuals act as if, among the many possible contingent futures of a given situation, the one they expect will come true (Good, 1988).

While some amount of trust is often necessary in any social interaction, the level of trust individuals choose to place in others varies. Previous research suggests that trust is influenced by both individual and situational factors. These factors include trustors'

dispositional trust (Rotter, 1971), emotions (Dunn & Schweitzer, 2005; McAllister, 1995), and mood (Lount, 2010); trustors' perceptions regarding trustees' trustworthiness (Mayer, Davis, & Schoorman, 1995), pro-relationship behaviors (Wieselquist, Rusbult, Foster, & Agnew, 1999), and self-control (Righetti & Finkenauer, 2011); subliminal cues in the environment (Huang & Murnighan, 2010); and culture (Yamagishi et al., 1998). This paper seeks to contribute to the literature on trust by shedding light on the social-cognitive factors that affect the level of trust individuals place in others. Among these factors are individual differences in epistemic motivation relating to how individuals handle ambiguity and uncertainty. Since trust inherently involves uncertainty management, it seems plausible to assume that there exists some link between trust and individuals' epistemic motivations. Surprisingly, however, the question of how exactly need for closure and interpersonal trust are related has not received any systematic research attention.

To the best of the present authors' knowledge, only one study has examined the impact on trust of a construct akin to need for closure (Sorrentino, Holmes, Hanna, & Sharp, 1995). In the context of romantic relationships (i.e., couples), Sorrentino et al. (1995) examined the influence of uncertainty orientation on trust in one's long-term romantic partner. Uncertainty orientation refers to an individual difference variable in the regulation of uncertainty and ambiguity (Sorrentino & Roney, 1986; Sorrentino & Short, 1986). Uncertainty-oriented individuals approach uncertain situations with the goal of resolving them in an effortful and direct manner, whereas certainty-oriented individuals do not approach uncertain situations, opting instead to maintain clarity about what they already know (Sorrentino & Roney, 2000). Sorrentino et al. (1995) found that certainty-oriented individuals had either high or low levels of trust in their partners, whereas uncertainty-oriented individuals trusted their partners moderately. The present research takes these findings as an important point of departure and attempts to replicate and extend them in various ways. First,

we study the relation between individuals' need for closure and trust in a general social interaction context (i.e., a broader context that is not restricted to close romantic relationships). Second, we investigate this relation for both chronic as well as temporary variations in individuals' need for closure. Third, we aim to shed light on the mechanism underlying this relation by showing that it depends on the trustor's interpersonal closeness with the trustee. Finally, we test the persistence of the relation in the presence of actual trustworthiness feedback.

### **Need for closure**

Building upon the concept of uncertainty orientation (Sorrentino & Roney, 1986; Sorrentino & Short, 1986) and related insights (e.g., Fiske & Taylor, 1991; Neuberg & Newsom, 1993; Schaller, Boyd, Yohannes, & O'Brien, 1995), Kruglanski and Webster (1996) proposed that a single overarching construct, which they labeled *need for closure* (NFC), underlies the cognitive-motivational aspects of decision making. Defined as a desire to look for *any* firm answer on a given topic rather than further sustain ambiguity or uncertainty (Kruglanski, 1989; Kruglanski & Webster, 1996; Webster & Kruglanski, 1994), NFC is assumed to be the motivational force in individuals' information search and processing (Jost, Glaser, Kruglanski, & Sulloway, 2003).

Individuals' NFC may be visualized on a continuum, where high NFC represents a strong desire for closure and low NFC represents a lack of desire for closure. Compared to individuals with low NFC, individuals with high NFC show higher cognitive impatience and a greater tendency to use effort-minimizing strategies to leap to any concrete and rigid judgment in order to satisfy their desire for closure (De Dreu, Koole, & Oldersma, 1999; Kruglanski & Ajzen, 1983; Kruglanski & Webster, 1996; Mayseless & Kruglanski, 1987). Individuals with low NFC, on the other hand, remain more open to different types of informational input, engage in more complex thinking, process information in a more

elaborative manner, and tend to suspend judgment until they have processed all available information (De Dreu et al., 1999; Kruglanski & Ajzen, 1983; Kruglanski & Webster, 1996; Mayseless & Kruglanski, 1987).

The extent of NFC experienced by individuals is determined by the perceived benefits of possessing closure and the perceived costs of lacking closure. The perception of such benefits and costs can be a function of the person, the situation, or both. Individual difference in NFC exist and are assessed by NFC scales (Roets & Van Hiel, 2007, 2011a; Webster & Kruglanski, 1994) However, NFC can also be aroused situationally due to increased benefits or costs associated with possessing closure in specific situations; these increased benefits or costs may be a result of noise (Kruglanski & Webster, 1996), mental fatigue (Webster, Richter, & Kruglanski, 1996), and/or time pressure (De Dreu, 2003; Heaton & Kruglanski, 1991; Jost, Kruglanski, & Simon, 1999; Kruglanski & Freund, 1983; Pierro, Mannetti, De Grada, Livi, & Kruglanski, 2003; Shah, Kruglanski, & Thompson, 1998).

Whether rooted in the situation or measured as a stable personality trait, NFC moderates a wide array of important judgmental phenomena. High NFC fosters a two-phase epistemic process described as “seizing and freezing” (also called “urgency and permanence”; Jost et al., 2003; Roets & Van Hiel, 2007). The first phase of this process, *seizing*, relates to the inclination of individuals with high NFC to urgently settle on judgments implied by readily available and/or inconclusive information in order to attain closure immediately when faced with ambiguity or uncertainty. For example, high NFC individuals have been shown to be more prone than low NFC individuals to primacy effects in impression formation, correspondence bias, and reliance on existing stereotypes (for a review, see Kruglanski & Webster, 1996). Individuals with high NFC have also demonstrated greater reliance on heuristics (e.g., focal points, stereotypic information) in social influence settings (De Dreu et al., 1999; Kardes, Fennis, Hirt, Tormala & Bullington, 2007).



The second phase of the epistemic process in high NFC individuals, *freezing*, is characterized by rigidity of thought, which permanently protects the judgment made in the first phase. The freezing phase has been empirically supported by studies showing that, compared to low NFC individuals, high NFC individuals demonstrate lower sensitivity to alternatives to a target hypothesis (Kruglanski & Mayseless, 1988), greater resistance to persuasion (Kruglanski, Webster, & Klem, 1993), greater reactance to people opposing a group consensus (Kruglanski, Pierro, Mannetti, & De Grada, 2006), and higher conservatism (Onraet, Van Hiel, Roets, & Cornelis, 2011).

### **Need for closure and trust**

In the context of trust, research on NFC suggests that uncertainty regarding others' future behavior should be more aversive to people with high NFC than to those with low NFC. Specifically, high NFC will lead to a quick and firm trust judgment in the seizing phase, which will then become crystallized, rigid, and protected in the freezing phase. Hence, it is likely that people with high NFC will, to a greater extent than those with low NFC, seize and then freeze on any firm trust judgments to remove uncertainty about their interaction partners' future behavior.

What constitutes a firm and rigid trust judgment upon which high NFC individuals seize and freeze? Because the level of trust individuals place in others varies, it stands to reason that polarized (i.e., both high and low, as opposed to moderate) and persistent levels of trust may serve high NFC individuals' seizing and freezing needs. On the one hand, a high level of trust may in itself constitute a step towards closure, as it represents a firm response to an otherwise uncertain social situation by allowing the high NFC trustor to rely on the trustee without needing to first individually scrutinize every possible future contingency. On the other hand, a low level of trust may also allow for a sense of closure, as trusting intrinsically implies the acceptance of social uncertainty, which is aversive to high NFC individuals. To

avoid the implied acceptance of such uncertainty, high NFC individuals may tend to avoid trusting others altogether. In other words, because people with high NFC are likely to have a higher need to resolve their uncertainty about others in one direction or the other, high NFC can be associated with either high or low (vs. moderate) as well as persistent (vs. changeable) levels of trust. Importantly, whether trust will be high or low for high NFC individuals may depend on readily available and salient cues in the social situation, most notably the degree of interpersonal closeness between the trustor and the trustee.

### **Need for closure, interpersonal closeness, and trust**

Preference for people who are close and similar to oneself is a fundamental, omnipresent social psychological phenomenon, which is demonstrated by in-group bias, out-group derogation, and ethnocentrism (Smith & Bond, 1993). However, a wealth of research suggests that NFC moderates this effect; that is, compared to people with low NFC, people with high NFC tend to display an even higher preference for people close or similar to themselves. For instance, higher NFC has been found to be associated with greater preference for homogeneous and self-resembling groups (Kruglanski, Shah, Pierro, & Mannetti, 2002); increased in-group favoritism and out-group derogation (Kruglanski et al., 2006; Shah et al., 1998); higher tendencies to engage in ethnic stereotyping (Kruglanski & Freund, 1983), prejudice (Roets & Van Hiel, 2011b), right-wing attitudes (Onraet et al., 2011), and racial categorization (Roets & Van Hiel, 2011c). In the context of the present research, these findings suggest that the impact of interpersonal closeness on trust may depend on individuals' need for closure. Specifically, cues to interpersonal closeness that are readily available in the trust setting may be eagerly embraced (i.e., seized) by high NFC individuals in order to arrive at a quick and firm trust judgment, which they can then freeze upon. Conversely, because of their lack of motivation to seize and freeze, low NFC individuals will respond to such cues differently; while they might not actively ignore them, they will process

these cues in conjunction with all other available informational input (most notably input on actual behavior), until a satisfactory, data-driven trust judgment can be reached. Moreover, compared to high NFC individuals, low NFC individuals are more likely to show flexibility when new information (e.g., data on actual trust behavior of the trustee) becomes available; because they are less motivated to freeze on their initial conclusions, they will adapt their trust judgments to the new evidence. This implies that cues regarding interpersonal closeness will serve as a readily available basis for quick and firm trust judgments for high, but not low, NFC individuals. Consequently, the polarization effect of NFC will manifest itself such that high NFC individuals will place higher trust in close others than in distant others, whereas low NFC individuals will not show a similar divergence of trust judgments as a function of interpersonal closeness. Accordingly, we posit that need for closure moderates the impact of interpersonal closeness on trust judgments, such that its impact is more pronounced for higher NFC individuals than for lower NFC individuals. This moderation should hold both for the judgment formation stage (where initial trust judgments are formed, and where high NFC individuals might seize prematurely) and for the possible re-evaluation stage (where trust judgments might be re-evaluated in the light of newly available behavioral evidence of the trustworthiness of the trustee, and where higher NFC individuals might freeze on their initial judgment). Finally, we posit that these postulated effects hold both for chronic individual differences in NFC and for more acute, situational differences in NFC.

### **Current Research**

The current research aims to contribute to the trust literature by studying how people's epistemic motives may influence their trust in others as a function of interpersonal closeness cues. Because uncertainty is a major issue related to trust, we propose that individuals' level of NFC influences their trust decisions. Specifically, based on the seizing component of NFC, we predict that higher NFC will be associated with lower trust in distant others than in close

others. Regardless of the level of trust, however, we also predict that higher NFC will be associated with more persistent trust judgments due to the freezing component of NFC.

We test these predictions in six studies. In Study 1, we show that there is a negative association between individuals' chronic NFC and their trust in distant (i.e., anonymous) others. In Study 2, we show that NFC moderates the impact of interpersonal closeness (proxied by acquaintance) on trust, such that higher NFC is associated with lower trust as interpersonal closeness decreases; further, we show that this effect is persistent in the face of an actual social interaction involving negotiation. In Study 3, we systematically manipulate interpersonal closeness with the trustee and compare the effects of NFC on trust in others at three different degrees of interpersonal closeness. Specifically, we show that higher chronic levels of NFC are associated with higher trust in close others (i.e., close friends) than in distant others (i.e., anonymous strangers). In Studies 4 and 5, we replicate Study 3 with two different situational (state) manipulations of NFC and show that the effects of situationally evoked NFC on trust are similar to those of individual trait-based NFC; that is, regardless of whether NFC is state- or trait-based, higher NFC results in lower trust in distant others than in close others, whereas closeness cues are inconsequential for low NFC individuals. In Study 6, we show that the interaction effect between NFC and interpersonal closeness on trust persists even in the presence of actual trustworthiness feedback. Specifically, we demonstrate that people with low NFC adjust their trust in both close and distant others according to their actual trustworthiness, whereas people with high NFC freeze upon their existing trust judgments (based upon their interpersonal closeness perception) and do not adjust those judgments according to new evidence regarding the trustee's actual trustworthiness.

### **Study 1**

Study 1 was designed to investigate the association between NFC and trust in anonymous – and hence distant – trustees. In our conceptual development, we argued that

higher NFC would be associated with trust based on readily available cues in the environment that allow for an instant, firm judgment. In the present case, we expected that higher NFC individuals would seize upon the anonymous nature of the trustee, producing lower trust judgments.

## Method

### Participants

A total of 38<sup>1</sup> volunteer graduate students (14 males and 24 females,  $M_{age} = 25.76$ ,  $SD_{age} = 2.06$ ) at a major European business school participated in the study as an in-class exercise. Participants were informed that the study would require them to play a hypothetical game aimed at understanding personality differences in investment decisions.

### Procedure

First, we asked participants to complete the revised version of the full NFC scale (developed by Webster & Kruglanski, 1994; revised by Roets & Van Hiel, 2007). The full, revised NFC scale comprises 41 items using self-reported responses on a six-point scale (1 = strongly disagree; 6 = strongly agree) to assess stable individual differences in NFC. Sample items of the NFC scale are “I don't like situations that are uncertain,” “I would rather make a decision quickly than sleep over it,” and “When I have made a decision, I feel relieved.”

We computed a composite NFC score for each participant by averaging responses to all 41 items ( $\alpha = .87$ ,  $M = 3.77$ ,  $SD = .46$ ). For conciseness, we also computed a brief, 15-item NFC score (Roets & Van Hiel, 2011a) for each participant ( $\alpha = .74$ ,  $M = 3.69$ ,  $SD = .52$ ). Scores for the 41-item full NFC scale and the 15-item short NFC scale were strongly correlated, indicating that they measured the same construct,  $r(38) = .931$ ,  $p < .001$ . Thus, in this study and in the following studies, we used the brief 15-item NFC scores in all analyses.

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<sup>1</sup> Please note that Study 1 was restricted by the class size in which the study was run.

Next, to assess participants' trust, we asked them to play an investment game (Berg, Dickhaut, & McCabe, 1995), a widely-used paradigm specifically designed and validated to measure behavioral trust (Johnson & Mislin, 2011). In this game, participants were asked to make a risky investment decision, in which the level of investment was determined by how much they trusted another person. In the original version of the investment game (Berg et al., 1995), two players – an investor and a broker – start with an initial endowment. The investor (i.e., trustor) can choose to transfer a portion of his money to the broker, with the understanding that the money will be tripled while being transferred to the broker. Then, the broker (i.e., trustee) can reciprocate by returning as much money as he or she chooses, with the understanding that the amount returned will not be increased and that the game will end. Investing money with no guarantee of return is an act of trust, because it involves accepting vulnerability based on positive expectations of being returned a higher amount than was invested. Lower trust manifests through the acceptance of less vulnerability (i.e., investing lower amounts), whereas higher trust manifests through the acceptance of more vulnerability (i.e., investing higher amounts). Therefore, the relative amount the participant chooses to send in the role of investor can be seen as a measure of trust (i.e., the ratio of the observed transfer to the maximum amount available to transfer); hence, this amount served as our dependent variable in this and the following studies.

Participants in Study 1 were led to believe that half of them would be assigned to the role of the investor while the other half would be assigned to the role of the broker. In reality, however, because our main variable of interest in this research was trust, all participants in Study 1 received the scenario for the investor. Each investor was told that the broker was *a person whom they did not know and who would remain anonymous* (see Appendix for full instructions). Finally, participants were debriefed and thanked for their cooperation.

## **Results and discussion**

Participants in Study 1 on average transferred 57.5% of their initial endowment ( $SD = .32$ ). Gender had neither any main effect nor any interaction effect on the transfer ratio (all  $F$ s  $< 1$ ), so it will not be discussed further.

To test the hypothesis that higher NFC is associated with lower trust in anonymous others, participants' transfer ratio was regressed onto their NFC scores. As expected, regression analysis revealed that participants' NFC significantly and negatively predicted their transfer ratio in the investment game,  $\beta = -.36$ ,  $t(36) = -2.29$ ,  $p = .03$ . NFC also explained a significant proportion of variance in the transfer ratio,  $R^2 = .16$ .

This study showed that individuals with higher NFC transferred a smaller part of their endowment to the anonymous broker in the investment game. This suggests that higher levels of NFC do indeed cause individuals to seize upon lower trust in distant (in this case, anonymous) others.

## Study 2

Study 2, which was run as part of a larger simulated negotiation study on the determinants of negotiation outcomes, builds on the previous results by examining the effect of NFC on trust judgments that are made when individuals actually meet and engage in face-to-face negotiation. In addition, to assess the robustness of the NFC effect and to avoid possible demand characteristics (Orne, 1962), we extended the previous study by allowing for a substantial, one-week time lag between the administration of the NFC measure and the trust assessment. Finally, rather than keeping the level of closeness constant, the present study allowed for natural variation in the level of interpersonal closeness between interaction partners, as proxied by a measure of prior acquaintance. In line with our theorizing, we expected NFC to moderate the impact of interpersonal closeness, such that individuals with higher NFC would trust close interaction partners (i.e., those with a higher level of

acquaintance) more than distant ones. For individuals with lower NFC, level of closeness was expected to be inconsequential for trust judgments.

## Method

### Participants

A total of 216 students (108 males and 108 females,  $M_{age} = 24.44$ ,  $SD_{age} = 4.75$ ), recruited through brief in-class announcements at a major European business school, participated in this study in exchange for 20 euros. Additionally, a lottery was held to increase the realism of the negotiation and the investment game. All participants were informed that the profit they made in the course of the study would determine the number of lottery tickets they received.<sup>2</sup>

### Procedure

Participants signed up for the study via a recruitment website. One week before they came to the laboratory, they completed the 15-item NFC scale (Roets & Van Hiel, 2011a) online. The scale comprised 15 items measured on a 6-point scale. A composite NFC score was computed for each participant by averaging the item scores, with higher scores indicating higher NFC ( $\alpha = .89$ ,  $M = 3.58$ ,  $SD = .68$ ).

Upon their arrival at the laboratory, participants were randomly assigned to dyads for negotiation sessions, in which each dyad spent 25 minutes negotiating a purchase agreement widely used in negotiation studies (developed by Pruitt & Lewis, 1975). Each participant was required to assume the role of a company representative in the pharmaceutical industry; in each dyad, one participant was assigned the role of buyer and the other was assigned the role

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<sup>2</sup> Specifically, half of the participants were informed that the number of lottery tickets they would receive would be based on joint profit, while the other half were informed that the number of lottery tickets they would receive would be based on individual profits. This difference in incentive instructions (and, thus, social motivation) did not affect participants' transfer ratio, nor did it interact with NFC to affect their transfer ratio (all  $F$ s < 1). Therefore, it is not discussed further in this paper.



of seller. The aim of the negotiation was to reach an agreement on three issues: patent license fee, duration of license, and royalty percentage. Each of these three issues had nine possible settlement points; participants were informed that they could agree on any of any of the points for each of the three issues.

Participants were given a profit chart detailing how their own profits (but not their counterparts' profits) were associated with the settlement points. The negotiation task allowed the negotiating parties to combine and integrate their interests to reach higher joint gains (Pruitt & Rubin, 1986). Because they were not allowed to exchange their profit charts, participants had to discover the integrative potential of the negotiation through communication and information exchange.

Previous research shows that negotiations with such integrative potential have important consequences for trust development (Greenhalgh & Chapman, 1998) because negotiators reveal and receive diagnostic data that is necessary for them to learn who can be trusted and to what extent (Kramer & Carnevale, 2008). For example, communication during negotiation may facilitate trust development by providing negotiators with opportunities to exchange information about their needs and desires, to show interest in each other's welfare, to ascertain each other's openness to reciprocity, and to influence each other's perceptions (Van den Abbeele, Roodhooft, & Warlop, 2009).

Following the negotiation, participants completed a questionnaire that measured: (a) participants' degree of prior acquaintance with each other, as a proxy for their interpersonal closeness, on a 6-point scale (1= not at all, 6 = extremely;  $M = 1.92$ ,  $SD = 1.64^3$ ); (b) participants' profits in the negotiation, calculated from the profit charts they received, and (c)

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<sup>3</sup> Note that the mean score indicates a low level of mutual acquaintance in our sample. Of all participants, 72% indicated that they were not acquainted with each other at all, whereas only 6% indicated that they were highly acquainted with each other.

participants' subjective evaluation of the negotiation. To assess (c), we used the 16-item Subjective Value Inventory (SVI; Curhan, Elfenbein, & Xu, 2006), in which all items were measured on a 7-point scale (1 = not at all, 7 = perfectly). An example item from the SVI is "How satisfied are you with your negotiation outcome?" We computed a composite SVI score for each participant by averaging responses to all 16 items ( $M = 4.85$ ,  $SD = .89$ ,  $\alpha = .83$ ).

Next, participants were asked to play the investment game used in Study 1. One person from each dyad was assigned the role of the investor, while the other person was assigned to the role of the broker. Similar to the previous study, the present study focused on the behavior of the investors ( $n = 108$ ), and we computed investors' transfer ratio to calculate trust.

Finally, participants were debriefed, were given their lottery tickets and were paid for their participation. At the end of the study, the winner of the lottery received a tablet computer.

### **Results and discussion**

For exploratory reasons, we investigated whether participants' NFC was associated with their profit gain in the negotiation and/or with their subjective evaluation of the negotiation (SVI). Participants' NFC scores were not significantly correlated with their profits or with their SVI scores ( $r = -.09$ ,  $p = .35$ ;  $r = -.04$ ,  $p = .65$  respectively); thus, these associations will not be discussed further.

In the investment game, the investors on average sent 46% of their initial endowment ( $SD = .31$ ) to the brokers. In a preliminary analysis, participants' profits, SVI scores, and gender did not have any significant main or interaction effects on their transfer ratio in the investment game (all  $F$ s  $< 1$ ). Therefore, these variables are not included in any further analysis.

To test the effect of NFC and interpersonal closeness on trust, we regressed participants' transfer ratio on their NFC, their acquaintance with their counterpart, and the interaction between the two. Regression analysis results revealed a significant negative main effect of NFC on the transfer ratio,  $\beta = -.11$ ,  $t(104) = -2.85$ ,  $p = .005$ ,  $\eta^2 = .07$ . That is, higher levels of NFC were associated with lower transfer ratios; this is a plausible effect given the relatively low average level of interpersonal closeness in the sample. In addition, regression results also revealed a significant positive main effect of degree of acquaintance on the transfer ratio,  $\beta = .05$ ,  $t(104) = 2.86$ ,  $p = .005$ ,  $\eta^2 = .07$ . That is, participants' higher levels of acquaintance were associated with higher transfer ratios.

Moreover, despite the low average level of interpersonal closeness, and consistent with our reasoning, a significant interaction effect between NFC and acquaintance emerged,  $\beta = .052$ ,  $t(104) = 2.16$ ,  $p = .03$ ,  $\eta^2 = .04$ ; this is illustrated in Figure 1. We further examined the nature of this interaction by conducting simple slopes analysis (cf. Aiken & West, 1991). More specifically, we examined the effect of acquaintance on trust for participants with high NFC ( $M + 1 SD$ ) and for participants with low NFC ( $M - 1 SD$ ) separately. As expected, for participants with high NFC, higher levels of acquaintance were associated with significantly higher transfer ratios,  $\beta = .087$ ,  $t(104) = 3.98$ ,  $p < .001$ , whereas this was not the case for participants with low NFC,  $\beta = .012$ ,  $t(104) = .44$ ,  $p = .66$ . That is, high NFC participants' transfer ratio depended on their interpersonal closeness with the trustees, with these individuals transferring a higher proportion of their money when their counterpart was closer to them (and a lower proportion when their counterpart was more distant from them), whereas low NFC participants' transfer ratio did not depend upon their closeness with the trustees.

Next, we explored the effect of NFC on trust at low levels of acquaintance ( $M - 1 SD$ ) and at high levels of acquaintance ( $M + 1 SD$ ) separately. Simple slope analysis showed that when acquaintance was low, the transfer ratio significantly decreased as NFC increased,  $\beta = -$

.20,  $t(104) = -3.63$ ,  $p < .001$ . On the other hand, when acquaintance was high, the transfer ratio was not affected by NFC,  $\beta = -.024$ ,  $t(104) = -.42$ ,  $p = .67$ . Hence, high NFC participants transferred lower amounts than did low NFC participants when interpersonal closeness was low. When interpersonal closeness was high, the difference between transfer ratios of high and low NFC participants was not significant; this is a plausible result as our sample contained very few observations in which interpersonal closeness was particularly high.

Overall, the present results show that NFC indeed moderates the effect of interpersonal closeness on trust, such that high, but not low, NFC is associated with higher trust in close others than in distant others. Interestingly, these results were found to hold when NFC was assessed a considerable amount of time before the actual negotiation interaction, thus ruling out demand characteristics as an alternate account. Moreover, these results were observed in a realistic social interaction setting involving face-to-face negotiation. Consequently, the results of Study 2 support our idea that higher NFC causes individuals to seize and freeze on their relatively higher (lower) initial trust judgments towards people at higher (lower) levels of interpersonal closeness.

### Study 3

Our goal in Study 3 was to extend Study 2 in three ways. First, to account for the possible influence of the low mean level of and very little variance in acquaintance in the previous study, in Study 3 we systematically varied interpersonal closeness. Second, we sought to increase the generalizability of our findings to a non-student sample. Third, we aimed to establish the robustness of the moderating role of NFC by accounting for the possible influence of a plausible alternative predictor: dispositional interpersonal trust (i.e., the general expectation that other individuals can be relied upon; Rotter, 1967). We expected

NFC to moderate the impact of interpersonal closeness on behavioral trust, while controlling for the impact of dispositional trust.

## Method

### Participants

Study 3, which was presented as a study about financial decision making, included 261 participants (158 males and 103 females,  $M_{age} = 33.48$ ,  $SD_{age} = 11.51$ ) from an online panel in the U.S (i.e., MTurk). To test the research hypotheses, we used a research design with interpersonal closeness (low, medium, high) as a between-subjects factor and individual differences in NFC as a continuous predictor.

### Procedure

Data collection was conducted online, and participants completed the study on their personal computers. To increase our control over the experimental procedure, we gave participants a time limit of 25 minutes to complete the study.

First, participants completed the brief 15-item NFC scale (Roets & Van Hiel, 2011a). As in previous studies, all items were measured on a six-point scale ( $\alpha = .85$ ), and a composite NFC score was computed by averaging scores on the items, with higher scores indicating higher NFC ( $M = 4.06$ ,  $SD = .63$ ).

Next, participants were asked to make a hypothetical investment decision, which was identical to the investment game used to measure trust in Studies 1 and 2 except for one change: in this version of the investment game, the identity of the trustee (i.e., the broker) was manipulated at three different levels of interpersonal closeness. Participants in the low interpersonal closeness condition were instructed to imagine that the broker was *a person whom they did not know and who would remain anonymous*. Participants in the moderate interpersonal closeness condition were instructed to imagine that the broker was *a person they did know but who was not particularly close to them*. Finally, participants in the high

interpersonal closeness condition were instructed to imagine that the broker was *a good friend who was particularly close to them*. Participants were asked to make their investment decision solely on the basis of this brief information about the identity of the trustee. To assess our main dependent variable of the participants' trust, we computed the ratio of the amount participants transferred to their initial endowment (i.e., transfer ratio). To ensure that they made a deliberative decision, participants were also asked to state three reasons for their investment decision.

After making their investment decision, participants completed Rotter's (1967) 25-item Interpersonal Trust Scale (ITS), which was designed to measure individuals' dispositional trust. Sample ITS items include "One is better off being cautious when dealing with strangers until they have provided evidence that they are trustworthy" (reverse coded) and "Most people can be counted on to do what they say they will do." All items were measured on a five-point scale (1 = strongly disagree, 5 = strongly agree;  $\alpha = .81$ ). A composite dispositional trust score was computed by averaging scores on the items, with higher scores indicating higher dispositional trust ( $M = 2.73$ ,  $SD = .43$ ).

Finally, after responding to dispositional trust items, participants answered some demographic questions regarding their age, sex, and favorite sports activity; the last of these was an attention filter, which we adapted from the Instructional Manipulation Check (IMC) developed by Oppenheimer, Meyvis, and Davidenko (2009) to detect participants who are not following instructions. Since the study was conducted online and, hence, our control over the experimental procedure was limited, we reasoned that it was important to filter out any participants who did not follow the instructions properly.<sup>4</sup>

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<sup>4</sup> Oppenheimer et al. (2009) report that up to 46% of their participants failed the IMC. We reasoned that a similar result might occur especially in studies we conducted online, so we took the precaution of recruiting a large sample for the current and consecutive studies run on MTurk.

## Results and discussion

A total of 73 participants (28% of the total sample) were dropped from the study for not following all the experimental instructions. Specifically, the criteria for dropping participants in this and the consecutive studies were: a) not completing the study within the time allotted, b) not providing any sensible (i.e., issue-relevant) reasons for their investment decision, and c) failing to answer the attention filter question properly (from Oppenheimer et al., 2009).<sup>5</sup> Therefore, the final analysis included 188 participants (107 males and 81 females).

In this sample, participants on average transferred 57% of their initial endowment ( $SD = .32$ ) to their brokers. A first series of regression analyses was conducted with transfer ratio as the criterion and interpersonal closeness, NFC, and the interaction between the two as predictors. The results were as follows. First, a significant main effect of interpersonal closeness on trust emerged; specifically, transfer ratio increased as interpersonal closeness increased ( $N_{low} = 65$ ,  $M_{low} = .51$ ,  $SD_{low} = .32$  vs.  $N_{moderate} = 60$ ,  $M_{moderate} = .54$ ,  $SD_{moderate} = .30$  vs.  $N_{high} = 63$ ,  $M_{high} = .68$ ,  $SD_{high} = .32$ ),  $\beta = .09$ ,  $t(184) = 3.42$ ,  $p = .001$ ,  $\eta^2 = .07$ . As a result of our three closeness conditions, we were also able to test for the linearity of the relationship between interpersonal closeness and trust. We conducted tests of non-linearity to investigate this issue further. Our curve-fit results revealed that a linear function best fitted the data and hence explained the observed variance,  $R^2 = .50$ ,  $F(1, 186) = 9.62$ ,  $p < .001$ .

Second, participants' NFC had no main effect on their transfer ratio,  $\beta = .014$ ,  $t(184) = .61$ ,  $p = .54$ ,  $\eta^2 = .002$ . Of more importance to our reasoning, a significant interaction between NFC and interpersonal closeness emerged as expected,  $\beta = .08$ ,  $t(184) = 3.02$ ,  $p = .003$ ,  $\eta^2 = .07$  (Figure 2). Simple slopes analysis indicated that the slope for participants with

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<sup>5</sup> In this and the following studies, there were no significant differences between the excluded and included participants with respect to our key demographic variables (all  $F$ s  $< 1$ ); hence, the present results cannot be accounted for by sampling bias.

higher NFC ( $M + 1SD$ ) was significantly different from zero,  $\beta = .17$ ,  $t(184) = 4.35$ ,  $p < .001$ , whereas the slope for participants with lower NFC ( $M - 1SD$ ) was not,  $\beta = .013$ ,  $t(184) = .35$ ,  $p = .73$ . In other words, as expected, interpersonal closeness was a significant predictor of trust for participants with high NFC, but not for participants with low NFC. That is, high NFC individuals' trust increased as interpersonal closeness increased, whereas low NFC participants did not rely on closeness cues in their trusting behavior.

We also separately explored the effect of NFC on trust at high, moderate, and low levels of interpersonal closeness. Simple slope analysis showed that when closeness was low, the transfer ratio significantly decreased as NFC increased,  $\beta = -.07$ ,  $t(184) = -2.14$ ,  $p = .03$ . When closeness was moderate, the transfer ratio was not affected by NFC,  $\beta = .014$ ,  $t(184) = .61$ ,  $p = .54$ . When closeness was high, however, the transfer ratio increased as NFC increased,  $\beta = .10$ ,  $t(184) = 2.43$ ,  $p = .016$ ; this was an expected result as previous research shows that higher NFC induces in-group favoritism (e.g., Shah et al., 1998), and the way we manipulated high interpersonal closeness (i.e., "a close friend") in Study 3 assured that we induced an in-group feeling.

Next, to control for the possible influence of dispositional trust, we conducted a similar type of regression analysis including dispositional trust as a covariate. Importantly, dispositional trust was not significantly correlated with NFC ( $r = -.11$ ,  $p = .15$ ), nor did it significantly predict transfer ratio. More importantly, the pivotal interaction between NFC and interpersonal closeness remained significant,  $\beta = .07$ ,  $t(183) = 2.64$ ,  $p = .009$ ,  $\eta^2 = .03$ , after controlling for dispositional trust, thus excluding the construct as a rival explanation of our findings.

In sum, the present results replicate and extend the previous findings and support our reasoning that NFC affects the impact of the trustor's interpersonal closeness with the trustee on actual trusting behavior. Whereas such closeness cues appear to be inconsequential to low



NFC individuals, they are an important source of trust for high NFC individuals, who trust closer trustees to a larger extent than distant ones. Importantly, this relationship proved to be unaffected by individual differences in dispositional trust.

#### **Study 4**

In Study 4, we sought to extend the results of the first three studies in two ways. First, whereas Studies 1-3 focused on chronic individual differences in NFC, the present study examined the role of acute, situational (state) differences in NFC by actively manipulating the construct. As mentioned in the Introduction section, a validated approach to arrive at situationally induced differences in NFC is to introduce differences in time pressure that require participants to make a quick (rather than careful) decision (see De Dreu, 2003; Heaton & Kruglanski, 1991; Jost et al., 1999; Kruglanski & Freund, 1983; Pierro et al., 2003; Shah, Kruglanski, & Thompson, 1998). We chose to follow this approach in the present study.

Second, in Studies 1-3, we only used one particular measure of trust, (i.e., a behavioral measure assessed via the investment game); thus, one might question the generalizability of our findings in those studies to other measures of trust. To assess whether our findings converge with other measures of trust, we sought to replicate our earlier findings using a self-reported measure of trust in addition to the investment game. Thus, Study 4 examined whether time pressure-manipulated NFC and interpersonal closeness with the trustee would lead to differences in trust, as measured by both self-report and the investment game. The hypothesis guiding the present study was that our findings would extend to state-based NFC and self-reported trust; we expected state-based NFC to moderate the impact of closeness cues on both behavioral and self-reported trust, such that their impact would be more pronounced in the case of higher as opposed to lower NFC.

#### **Method**

##### **Participants**

Study 4, which was presented as ‘a study about time and financial decision-making’, included 201 participants (98 males and 103 females,  $M_{age} = 35.81$ ,  $SD_{age} = 13.92$ ) from an online panel in the U.S (i.e., MTurk). To test our hypotheses, we used a 2 (interpersonal closeness: low, high) by 2 (NFC: low, high) between-subjects factorial design.

### **Procedure**

Data collection was conducted online, and participants completed the study on their personal computers. Following previous research, we manipulated participants’ need for closure via time pressure. Specifically, participants in the high time pressure condition were told that they had a maximum time limit to complete the questionnaire because we wanted them to answer the questions as *quickly* as possible, whereas participants in the low time pressure condition were told that they had a minimum time requirement to complete the questionnaire because we wanted them to answer the questions as *carefully* as possible (for similar instructions, see, e.g., Pierro et al., 2003; Shah et al., 1998).

Next, participants were asked to make a hypothetical investment decision, the format of which was similar to the investment game used to measure trust in Studies 1-3, with transfer ratio serving as one of the dependent variables. As in Study 3, participants’ interpersonal closeness with the trustee was manipulated by manipulating the identity of the trustee (i.e., broker). Specifically, participants in the high interpersonal closeness condition were told to imagine that the broker in the investment game was *a good friend who was particularly close to them*, whereas participants in the low interpersonal closeness condition were told to imagine that the broker in the investment game was *a person whom they did not know and who would remain anonymous*. As in Study 3, participants were also asked to state three reasons for their investment decision.

After making their investment decision, participants were asked to self-report their level of trust in the trustee (i.e., the broker) via three items (e.g., “I think the broker is a

trustworthy person”;  $\alpha = .91$ ), measured on a seven-point scale (1 = not at all; 7 = completely). We created a trust index by averaging scores on these three items ( $M = 4.89$ ,  $SD = 1.33$ ). Lastly, participants were asked to respond to questions which measured the adequacy of the time pressure manipulation and their demographic information. The latter also included an attention filter item, as in Study 3 (Oppenheimer et al., 2009).

### Results and discussion

15 people (7.5% of the total sample) were dropped from further analysis as a result of the same exclusion criteria discussed in Study 3 (with the exception of the 25-minute time-limit criterion, as the use of this time limit would have interfered with our time-pressure manipulation of NFC in Study 4). Hence, our final sample consisted of 186 participants (88 males and 98 females).

To check the adequacy of our need for closure manipulation, participants were asked to respond to two items on seven-point scales (1 = not at all; 7 = completely) to indicate how quickly and how carefully they answered the questions. In addition, the total time (in seconds) participants spent answering all the questions was recorded by a computer program ( $M = 517.16^6$ ,  $SD = 245.56$ ).

As intended, participants in the high NFC condition reported a higher motivation than those in the low NFC condition to provide answers as quickly as possible ( $N_{high} = 93$ ,  $M_{high} = 5.60$ ,  $SD_{high} = 1.52$  vs.  $N_{low} = 93$ ,  $M_{low} = 3.81$ ,  $SD_{low} = 1.52$ ),  $F(1, 185) = 81.43$ ,  $p < .001$ , whereas participants in the low NFC condition reported a higher motivation than those in the

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<sup>6</sup> Before we launched the MTurk studies, we asked several colleagues to take part in each study so that we could measure the time needed to complete it. Our colleagues completed each of the studies in about 10 to 15 minutes. Hence, we reasoned that 25 minutes would be a reasonable time limit for each study. Moreover, since the average time participants took to complete Study 4 (517.16 seconds, or 8.6 minutes) was well below the 25-minute time limit given to the participants in Studies 3, 5, and 6, this limit should not be considered to constitute time pressure (i.e., a high-NFC situation).

high NFC condition to provide answers as carefully as possible ( $M_{low} = 6.73$ ,  $SD_{low} = .51$  vs.  $M_{high} = 6.51$ ,  $SD_{high} = .69$ ),  $F(1, 185) = 6.46$ ,  $p = .01$ . Furthermore, participants in the high, compared to low, NFC condition did indeed answer all the questions more quickly ( $M_{high} = 419.43$  seconds,  $SD_{high} = 192.64$  seconds vs.  $M_{low} = 614.88$  seconds,  $SD_{low} = 254.66$  seconds),  $F(1, 185) = 736.03$ ,  $p < .001$ . Even though there was a significant difference in the total time taken to answer the questions in the different NFC conditions, time did not have any main or interaction effects on the transfer ratio or self-reported trust (all  $F$ s  $< 1$ ). Moreover, the percentage of participants that passed the attention filter did not differ according to NFC condition,  $\chi^2(1, N = 210) = .56$ ,  $p = .46$ .

To assess participants' trust, we computed participants' transfer ratio by dividing the amount participants transferred by their initial endowment, as in Studies 1-3. In this sample, investors on average sent 63% of their initial endowment ( $SD = .33$ ). To test our interaction hypothesis, we ran a two-way analysis of variance (ANOVA). Results paralleled the previous findings and showed that participants' interpersonal closeness with the trustee (i.e., broker) positively and significantly predicted their transfer ratio ( $N_{low} = 94$ ,  $M_{low} = .54$ ,  $SD_{low} = .35$  vs.  $N_{high} = 92$ ,  $M_{high} = .73$ ,  $SD_{high} = .28$ ),  $F(1, 182) = 16.43$ ,  $p < .001$ ,  $\eta^2 = .08$ , whereas their NFC did not, ( $N_{low} = 93$ ,  $M_{low} = .61$ ,  $SD_{low} = .31$  vs.  $N_{high} = 93$ ,  $M_{high} = .65$ ,  $SD_{high} = .35$ ),  $F(1, 182) = .72$ ,  $p = .40$ ,  $\eta^2 = .004$ . Moreover, as expected, the interaction between interpersonal closeness and NFC significantly affected transfer ratio,  $F(1, 182) = 4.12$ ,  $p = .04$ ,  $\eta^2 = .022$  (Figure 3).

Next, we probed the effect of interpersonal closeness on trust in the high NFC and low NFC conditions separately. Planned contrasts revealed that, as expected, for participants in the low NFC (low time pressure) condition ( $N = 93$ ), interpersonal closeness had no effect on the transfer ratio ( $N_{low} = 45$ ,  $M_{low} = .57$ ,  $SD_{low} = .32$  vs.  $N_{high} = 48$ ,  $M_{high} = .66$ ,  $SD_{high} = .30$ ),  $F(1, 182) = 2.05$ ,  $p = .15$ ,  $\eta^2 = .01$ , whereas for participants in the high NFC (high time pressure)

condition ( $N = 93$ ), interpersonal closeness had a strong and significant positive effect on the transfer ratio ( $N_{low} = 49$ ,  $M_{low} = .51$ ,  $SD_{low} = .35$  vs.  $N_{high} = 44$ ,  $M_{high} = .80$ ,  $SD_{high} = .25$ ),  $F(1,182) = 18.48$ ,  $p < .001$ ,  $\eta^2 = .092$ , indicating that participants in the high, but not low, NFC condition used interpersonal closeness cues as a basis for behavioral trust.

We also explored the effect of NFC on the transfer ratio in the low interpersonal closeness condition ( $N = 94$ ) and high interpersonal condition ( $N = 92$ ) separately. Planned contrasts revealed that in the low interpersonal closeness condition, NFC did not have a significant effect on the transfer ratio ( $N_{low} = 45$ ,  $M_{low} = .57$ ,  $SD_{low} = .32$  vs.  $N_{high} = 49$ ,  $M_{high} = .51$ ,  $SD_{high} = .38$ ),  $F(1,182) = .71$ ,  $p = .40$ ,  $\eta^2 = .004$ . In the high interpersonal closeness condition, however, NFC had a significant effect on the transfer ratio ( $N_{low} = 48$ ,  $M_{low} = .66$ ,  $SD_{low} = .30$  vs.  $N_{high} = 44$ ,  $M_{high} = .80$ ,  $SD_{high} = .25$ ),  $F(1,182) = 4.09$ ,  $p = .045$ ,  $\eta^2 = .022$ .

Finally, we examined the effects of NFC and interpersonal closeness on self-reported trust. The self-report measure of trust was highly correlated with the behavioral measure of trust ( $r = .65$ ,  $p < .001$ ), indicating that the two variables essentially measured the same construct. Indeed, the effects of NFC and interpersonal closeness on self-reported trust mirrored the effects of the same on behavioral trust. Specifically, interpersonal closeness increased participants' self-reported trust ( $N_{low} = 94$ ,  $M_{low} = 4.31$ ,  $SD_{low} = 1.14$  vs.  $N_{high} = 92$ ,  $M_{high} = 5.47$ ,  $SD_{high} = 1.26$ ),  $F(1,182) = 49.53$ ,  $p < .001$ ,  $\eta^2 = .21$ , whereas participants' NFC condition had no effect on their self-reported trust ( $N_{low} = 93$ ,  $M_{low} = 4.79$ ,  $SD_{low} = 1.07$  vs.  $N_{high} = 93$ ,  $M_{high} = 4.99$ ,  $SD_{high} = 1.54$ ),  $F(1,182) = 2.43$ ,  $p = .12$ ,  $\eta^2 = .013$ . As hypothesized, there was a significant interaction effect between interpersonal closeness and NFC on self-reported trust,  $F(1,182) = 21.39$ ,  $p < .001$ ,  $\eta^2 = .11$  (Figure 4). Specifically, similar to the results for the transfer ratio, for participants in the low NFC condition ( $N = 93$ ), interpersonal closeness did not affect self-reported trust ( $N_{low} = 45$ ,  $M_{low} = 4.58$ ,  $SD_{low} = .89$  vs.  $N_{high} = 48$ ,  $M_{high} = 4.98$ ,  $SD_{high} = 1.20$ ),  $F(1,182) = 2.91$ ,  $p = .09$ ,  $\eta^2 = .016$ , whereas for participants in the

high NFC condition ( $N = 93$ ) interpersonal closeness had a strong and significant effect on self-reported trust ( $N_{low} = 49$ ,  $M_{low} = 4.07$ ,  $SD_{low} = 1.29$  vs.  $N_{high} = 44$ ,  $M_{high} = 6.01$ ,  $SD_{high} = 1.10$ ),  $F(1, 182) = 67.95$ ,  $p < .001$ ,  $\eta^2 = .27$ .

We also explored the effect of NFC on self-reported trust in low interpersonal closeness condition ( $N = 94$ ) and high interpersonal condition ( $N = 92$ ) separately. Planned contrasts revealed that in the low interpersonal closeness condition, self-reported trust decreased as NFC increased ( $N_{low} = 45$ ,  $M_{low} = 4.58$ ,  $SD_{low} = .89$  vs.  $N_{high} = 49$ ,  $M_{high} = 4.07$ ,  $SD_{high} = 1.29$ ),  $F(1, 182) = 4.75$ ,  $p = .031$ ,  $\eta^2 = .025$ . In the high interpersonal closeness condition, however, self-reported trust increased as NFC increased ( $N_{low} = 48$ ,  $M_{low} = 4.98$ ,  $SD_{low} = 1.20$  vs.  $N_{high} = 44$ ,  $M_{high} = 6.01$ ,  $SD_{high} = 1.10$ ),  $F(1, 182) = 18.92$ ,  $p < .001$ ,  $\eta^2 = .094$ .

Overall, the results of Study 4 support our key hypothesis that the impact of interpersonal closeness cues on trust is moderated by both situational (state) and individual (trait) differences in NFC in a similar manner, and that the impact extends beyond behavioral trust to self-reported trust.

## Study 5

While Study 4 closely followed prevalidated procedures for inducing state differences in NFC, the present study sought to obtain converging evidence for the previous findings by using a slightly different manipulation that still closely matches the essence of the NFC construct (cf. Kruglanski & Webster, 1996; Webster & Kruglanski, 1994). In addition, while the previous studies were able to rule out demand characteristics and dispositional trust as rival accounts of our findings, the present study examined the possible influence of yet another alternative predictor: openness to experience, which is one of the Big Five personality traits (McCrae & Costa, 1999).

## Method

### Participants

A total of 206 people (118 male, 88 female) from a large online U.S. panel (i.e., MTurk) participated in the study.

### **Procedure**

As in Studies 3 and 4, participants completed the study on their personal computers. To increase our control over the experimental procedure, we gave participants a maximum time of 25 minutes to complete the study.

Similar to the previous studies, participants were informed that they would be asked to make some hypothetical investment decisions. We manipulated participants' NFC through instructions adapted from the definition of the NFC construct (Kruglanski, 1989; Kruglanski & Webster, 1996; Webster & Kruglanski, 1994). Specifically, participants in the high NFC condition were asked to *go with their initial gut decision*, whereas participants in the low NFC condition were asked to *carefully consider all possible sides of the issue* while making their investment decisions.

Next, participants were asked to play the hypothetical investment game, following the same format as in the previous studies. Similar to Studies 3 and 4, participants' interpersonal closeness with the trustee (i.e., broker) was manipulated by instructing participants in the high interpersonal closeness condition to imagine that the broker was *a good friend who was particularly close to them*, whereas participants in the low interpersonal closeness condition were instructed to imagine that the broker in the investment game was *a person whom they did not know and who would remain anonymous*. As in previous studies, participants' transfer ratios in the investment game served as our behavioral measure of trust, and we asked the participants to state three reasons for their investment decision.

After making their investment decision, participants were asked to answer the ten openness to experience items (e.g., "I see myself as someone who is original, comes up with new ideas") in the Big Five Inventory (John & Srivastava, 1999), measured on a five-point

scale (1 = Disagree strongly; 5 = Agree strongly). We created an openness index by averaging scores on these ten items ( $\alpha = .83$ ,  $M = 3.52$ ,  $SD = .60$ ). Lastly, participants responded to the NFC manipulation check, their demographic items, and the attention filter, as in Studies 3 and 4 (Oppenheimer et al., 2009).

### Results and discussion

Based on the same exclusion criteria used in Study 3, 17 participants (8.3% of the total sample) were dropped from the study for failure to respond to the experimental instructions. Hence, our final sample consisted of 189 participants.

To check the adequacy of our NFC manipulation, we asked participants to indicate whether their investment decision was based on a) their gut feeling, b) their consideration of all sides of the issue, or c) other. All participants answered the manipulation check correctly, indicating that our NFC manipulation worked as intended.

In this sample, investors on average sent 51% of their initial endowment to their brokers ( $SD = .28$ ). ANOVA results showed that participants' interpersonal closeness with the trustee (i.e., broker) positively and significantly predicted their transfer ratio ( $N_{low} = 95$ ,  $M_{low} = .43$ ,  $SD_{low} = .25$  vs.  $N_{high} = 94$ ,  $M_{high} = .6$ ,  $SD_{high} = .29$ ),  $F(1, 185) = 17.36$ ,  $p < .001$ ,  $\eta^2 = .086$ , whereas their NFC did not ( $N_{low} = 89$ ,  $M_{low} = .53$ ,  $SD_{low} = .25$  vs.  $N_{high} = 100$ ,  $M_{high} = .49$ ,  $SD_{high} = .31$ ),  $F(1, 185) = .33$ ,  $p = .57$ ,  $\eta^2 = .002$ . As expected, however, the interaction between interpersonal closeness and NFC had a significant effect on the transfer ratio,  $F(1, 185) = 7.01$ ,  $p = .009$ ,  $\eta^2 = .04$  (Figure 5).

As expected, planned contrasts revealed that for participants in the low NFC condition ( $N = 89$ ) interpersonal closeness had no effect on the transfer ratio ( $N_{low} = 40$ ,  $M_{low} = .50$ ,  $SD_{low} = .26$  vs.  $N_{high} = 49$ ,  $M_{high} = .56$ ,  $SD_{high} = .23$ ),  $F(1, 185) = .109$ ,  $p = .30$ ,  $\eta^2 = .006$ . However, for participants in the high NFC condition ( $N = 100$ ) interpersonal closeness had a



significant positive effect on the transfer ratio ( $N_{low} = 55$ ,  $M_{low} = .37$ ,  $SD_{low} = .24$  vs.  $N_{high} = 45$ ,  $M_{high} = .64$ ,  $SD_{high} = .33$ ),  $F(1, 185) = 24.65$ ,  $p < .001$ ,  $\eta^2 = .12$ .

We also explored the effect of NFC on the transfer ratio in low interpersonal closeness condition ( $N = 95$ ) and high interpersonal closeness condition ( $N = 94$ ) separately. Planned contrasts revealed that in the low interpersonal closeness condition, NFC had a significant negative effect on the transfer ratio ( $N_{low} = 40$ ,  $M_{low} = .50$ ,  $SD_{low} = .26$  vs.  $N_{high} = 55$ ,  $M_{high} = .37$ ,  $SD_{high} = .24$ ),  $F(1, 185) = 5.15$ ,  $p = .024$ ,  $\eta^2 = .027$ . In the high interpersonal closeness condition, however, NFC did not have a significant effect on the transfer ratio ( $N_{low} = 49$ ,  $M_{low} = .56$ ,  $SD_{low} = .23$  vs.  $N_{high} = 45$ ,  $M_{high} = .64$ ,  $SD_{high} = .33$ ),  $F(1, 185) = 2.17$ ,  $p = .143$ ,  $\eta^2 = .012$ .

Openness to experience was not correlated with participants' transfer ratio ( $r = .08$ ,  $p = .31$ ). When we included openness as a covariate (thus controlling for its possible influence, similar to the procedure we used to account for the possible influence of dispositional trust in Study 3), the focal interaction between interpersonal closeness and NFC remained significant,  $F(1, 184) = 7.00$ ,  $p = .01$ ,  $\eta^2 = .04$ , suggesting that openness cannot account for the observed results.

Overall, these findings add converging evidence that – regardless of whether it is measured as a personality trait or manipulated as a situational variable – high, but not low, NFC is related to lower trust in distant others than in close others. Moreover, the present results successfully exclude openness to experience as a rival account of our findings.

## Study 6

In Study 6, we sought to replicate and extend the findings of our previous studies in three ways. First, we wanted to replicate the interaction effect of interpersonal closeness and NFC on trust. Second, we wanted to test the persistence of this effect (i.e., freezing). Specifically, we sought to determine whether feedback about the trustee's actual

trustworthiness could override the interaction effect of NFC and interpersonal closeness on trust. Third, to rule out order effects, we changed the order in which we measured trust and NFC, this time measuring NFC at the end of the study.

In our conceptual development, we argued that higher NFC would be associated with more persistent trust judgments, as it would foster the tendency to freeze on these trust judgments regardless of their level. This argument is based on empirical evidence showing that high NFC leads to lower sensitivity to alternatives to a hypothesis (Kruglanski & Mayseless, 1988), greater resistance to persuasion (Kruglanski et al., 1993), greater reactance to individuals opposing a group consensus (Kruglanski et al., 2006) and higher conservatism (Onraet et al., 2011). Consequently, we expected that, having made trust judgments based on interpersonal closeness, high NFC individuals would be less sensitive than low NFC individuals to new information regarding the trustee's actual trustworthiness.

## **Method**

### **Participants**

Study 6, which was presented as 'a two-stage investment game' in which participants would make simultaneous investment decisions with a randomly matched counterpart, included a total of 361 participants (demographics not available) from a large online U.S. panel (i.e., MTurk). To test our research hypotheses, we employed a design with trustworthiness feedback (low, high) as a between-subjects factor and NFC and interpersonal closeness as continuous predictors.

### **Procedure**

As in Studies 3 and 5, participants were given 25 minutes to complete the study on their personal computers. In the first stage, participants made a hypothetical investment decision similar to the investment game used to measure trust in Studies 1-5. Specifically, participants were led to believe that they had been randomly assigned to the role of the

investor in the game and would be making simultaneous investment decisions with another participant who had been assigned to the role of the broker. In reality, however, the participants were not paired with counterparts; instead, because our main variable of interest was trust (measured by the transfer ratio of the investor in the investment game), all participants were assigned to the role of the investor.

Regarding the identity of the (fictitious) broker, participants were told only that the broker was a person from New York. We expected sufficient variation in perceived closeness to a person from a large state like New York; that is, we reasoned that some participants would feel closer and more similar to a broker from New York than others would. Next, participants were asked to indicate how close they felt to the broker on the Inclusion of Other in the Self (IOS) Scale (Aron, Aron, & Smollan, 1992), which measures perceived interpersonal closeness through a pictorial single item on a six-point scale ( $M = 2.76$ ,  $SD = 1.22$ ).

After making their first investment decision (i.e., the amount they wanted to transfer to the broker), participants were asked to state three reasons for their investment decision. Next, participants were randomly given feedback about the broker conveying either low or high trustworthiness. In the low trustworthiness feedback condition, participants were told that the broker returned to them exactly the same amount they originally transferred (which had been tripled when it was sent to the broker)<sup>7</sup>. In the high trustworthiness condition, they were told that the broker returned to them 50% more than the amount they originally transferred. Given that the broker could have returned any amount from zero to three times the amount that was transferred to them, our manipulation of trustworthiness allowed for a rather conservative test.

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<sup>7</sup> Note that our ‘low trustworthiness’ manipulation does not tap into ‘untrustworthy’ behavior but rather ‘less trustworthy’ behavior compared to our ‘high trustworthiness’ manipulation.

After receiving feedback about the broker's trustworthiness, participants were told that the second stage of the study had begun, involving a second round of the same investment game with the same person with whom they had been randomly paired in stage one. At this stage, participants were asked to make a second investment decision, which was identical to the first investment decision. Therefore, the only difference between participants' two investment decisions was the trustworthiness feedback they received after making the first decision. Next, participants answered the brief 15-item NFC scale (Roets & Van Hiel, 2011a;  $\alpha = .87$ ,  $M = 2.76$ ,  $SD = 1.22$ ). Lastly, participants were debriefed and were thanked for their participation.

### Results and discussion

Based on the same exclusion criteria used in Studies 3 and 5, a total of 52 participants (14% of the total sample) were dropped from the study for not following the experimental instructions properly. Hence, our final sample consisted of 309 participants.

As in previous studies, the main dependent variable, trust, was assessed by the ratio of the amount participants transferred to their initial endowment (i.e., transfer ratio). Participants transferred an average of 40% of their initial endowment ( $SD = .15$ ) in the first stage and 68% of their initial endowment ( $SD = .30$ ) in the second stage.

In the first stage, participants' perceived interpersonal closeness to the trustee (i.e., broker) was positively and significantly associated with their transfer ratio,  $\beta = .02$ ,  $t(305) = 2.23$ ,  $p = .03$ ,  $\eta^2 = .02$ , whereas participants' NFC was not,  $\beta = .01$ ,  $t(305) = -1.61$ ,  $p = .11$ ,  $\eta^2 = .01$ . As expected, however, the interaction between interpersonal closeness and NFC significantly affected the transfer ratio,  $\beta = .02$ ,  $t(305) = 2.01$ ,  $p = .05$ ,  $\eta^2 = .01$ . Replicating the previous findings, simple slope analysis showed that interpersonal closeness had no effect on the transfer ratio for people with low NFC ( $M - 1SD$ ),  $\beta = .002$ ,  $t(305) = .18$ ,  $p = .85$ , but had a significant positive effect on the transfer ratio for people with high NFC ( $M + 1SD$ ),  $\beta =$

.03,  $t(305) = 3.12$ ,  $p = .002$ . This result is in line with our general premise that people with high NFC trust close others more than distant others, whereas trust is not affected by interpersonal closeness for people with low NFC.

We also explored the effect of NFC on the transfer ratio in the low interpersonal closeness condition and high interpersonal closeness condition separately. Simple slope analysis revealed that when closeness was low ( $M - 1SD$ ), NFC had a significant effect on the transfer ratio,  $\beta = -.04$ ,  $t(305) = -2.54$ ,  $p = .012$ . When closeness was high ( $M + 1SD$ ), however, NFC did not have a significant effect on the transfer ratio,  $\beta = .004$ ,  $t(305) = .26$ ,  $p = .80$ ; this is a plausible result given the low average level of interpersonal closeness in this study.

Next, a repeated-measures analysis of variance analysis (RM-ANOVA) was conducted to examine the effect of trustworthiness feedback on the change in trust for low and high NFC participants. Transfer ratio served as our within-subjects variable, trustworthiness feedback served as our between-subjects factor, and NFC served as our between-subjects covariate.

RM-ANOVA results showed that trustworthiness feedback had a positive significant main effect on change in participants' transfer ratio,  $F(1, 305) = 7.83$ ,  $p = .005$ ,  $\eta^2 = .03$ , whereas NFC was not significantly associated with change in their transfer ratio,  $F(1, 305) = .22$ ,  $p = .14$ ,  $\eta^2 = .007$  (Figure 6). As expected, however, the interaction effect between trustworthiness feedback and NFC on change in transfer ratio was significant,  $F(1, 305) = 4.40$ ,  $p = .04$ ,  $\eta^2 = .014$ . Simple slope analysis revealed that for people with low NFC ( $M - 1SD$ ), trustworthiness feedback had a significant effect on change in transfer ratio,  $\beta = .08$ ,  $t(305) = 4.33$ ,  $p < .001$ , whereas for people with high NFC ( $M + 1SD$ ), feedback had no effect on change in transfer ratio,  $\beta = .03$ ,  $t(305) = 1.37$ ,  $p = .17$ .

These results suggest that high NFC people and low NFC people differ in how they respond to trustworthiness feedback. Low NFC participants significantly responded to the trustworthiness feedback and adjusted their behavior trust accordingly, whereas high NFC participants did not. In other words, participants with low NFC adjusted their trust according to the available information regarding the actual trustworthiness of the trustee, whereas participants with high NFC froze on their initial trust judgments regardless of the subsequently available trustworthiness information. These findings offer converging support for our conceptualization of the link between NFC and trust: higher NFC is associated with freezing on a previously established level of trust in a particular person.

### **Meta-Analysis**

Despite the varied nature of the studies, the results were generally consistent. By using different (i.e., student vs. non-student) samples, varying the degree of interaction between the trustor and the trustee (i.e. face-to-face interaction vs. fictitious trustee), and conducting our studies in different environments (i.e., in-class, laboratory, and online experiments), we explored the effect of NFC and interpersonal closeness on behavioral trust in a variety of contexts. The predicted  $\text{NFC} \times \text{closeness}$  interaction pattern was consistent across studies. Specifically, the effect of closeness on trust for high versus low NFC individuals was consistently significant. However, the effect of NFC on trust at high versus low interpersonal closeness was not always consistently significant. To summarize the findings and to allow for a better judgment of the overall significance of the effect of NFC and interpersonal closeness on behavioral trust, we conducted a meta-analysis to statistically assess the combined results of our studies (Rosenthal, 1991). To do so, we adopted an extension of the Stouffer method of adding z scores (Stouffer, 1949), which is the most widely used method for combining significance levels (Hayes, 1998). Specifically, we took the weighted average of our studies' z

scores (Lipták, 1958). Each study was weighted by its sample size to account for differences in sample sizes across studies (Whitlock, 2005).

The focal interaction between NFC and interpersonal closeness on trust was robust and significant across studies ( $z = 4.97, p < .001$ ). To explicate the nature of this interaction effect, we first examined the overall effect of interpersonal closeness for high and low NFC separately. As expected, the meta-analytic results showed that the overall effect of interpersonal closeness on trust was highly significant for high NFC participants ( $z = 6.86, p < .001$ ) but insignificant for low NFC participants ( $z = 1.37, p = .17$ ). We also explored the overall effect of NFC at high and low interpersonal closeness separately. The overall effect of NFC on trust was highly significant when interpersonal closeness was low ( $z = 4.77, p < .001$ ), insignificant when interpersonal closeness was moderate<sup>8</sup> ( $z = .64, p = .52$ ), and significant when interpersonal closeness was high ( $z = 3.39, p < .001$ ).

Overall, the meta-analysis results clearly indicate the existence of the hypothesized polarization effect of NFC on trust. First, the overall significance of the effect of interpersonal closeness for high, but not low, NFC individuals shows that the former are more sensitive to interpersonal closeness (and thus more likely to trust close others more than distant others) than the latter. Second, the results also suggest that the polarization effect manifests itself in another way as well, despite the separate simple slope analysis not unequivocally attesting to this option. That is, in the meta-analysis, the overall significance of the effect of NFC at high and low (but not moderate) interpersonal closeness, shows that high NFC individuals actually

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<sup>8</sup> Due to low average levels of interpersonal closeness in Study 2 (1 = not at all, 6 = extremely;  $M = 1.92, SD = 1.64$ ) and Study 6 (1 = not at all, 6 = extremely;  $M = 2.76, SD = 1.22$ ), combining the high interpersonal closeness values in these studies with the high interpersonal closeness values in Studies 3, 4, and 5 (in which high closeness referred to a 'close friend') would be inappropriate. Therefore, the high interpersonal closeness values in Studies 2 and 6 were coded as 'moderate interpersonal closeness' and were combined with the moderate interpersonal closeness results of Study 3 in the meta-analysis.

place lower trust in distant others than do low NFC individuals and also place higher trust in close others than do low NFC individuals. Hence, when comparing trust levels of high and low NFC individuals at high and low closeness, we again observe more polarized judgments.

### **General Discussion**

Trust is a complex interpersonal phenomenon that occurs within a framework of interpersonal interaction; as such, it is influenced by individual, interpersonal and situational factors. In the present research, we aimed to contribute to the trust literature by studying how people's epistemic motives may influence their trust in others. Because issues of trust inherently involve uncertainty, and because NFC is directly related to one's level of comfort with ambiguity and uncertainty, we argued that high and low (vs. moderate) levels of trust may compensate for the discomfort experienced by people with high NFC due to uncertainty about others' future behavior. Thus, we proposed that people with high NFC would use polarized levels of trust as a compensatory strategy for the lack of certainty regarding others' future behavior. We further proposed that interpersonal closeness with trustees would be an important factor in determining the level of trust placed in them by high NFC individuals. Specifically, we reasoned that individuals with high NFC would trust close others more than distant others, whereas closeness cues would be inconsequential for low NFC individuals' trust judgments.

The findings of six studies supported our predictions. Specifically, in Study 1, we found that people with high NFC trust anonymous others less than do people with low NFC. In Study 2, we showed that NFC moderates the effect of interpersonal closeness (proxied by level of acquaintance) on trust, such that higher NFC is associated with lower trust in the presence of lower interpersonal closeness; in addition, showed that this effect persists in social interaction involving negotiation. In Study 3, we systematically manipulated interpersonal closeness with the trustee and again found that high, but not low, NFC was



associated with higher trust in close others (i.e., close friends) than in distant (i.e., anonymous) others. In Studies 4 and 5, we showed that the effect of situationally manipulated NFC is similar to the effect of NFC when measured as a personality trait by self-reported items. Finally, in Study 6, we further showed that feedback about trustees' actual trustworthiness had a significant effect on trust for people with low NFC but no effect on trust for people with high NFC.

We also conducted a meta-analytic analysis of our studies to summarize our results and judge the overall significance of our findings. Taken together, the results support our polarization hypothesis. That is, the results show that individuals with higher NFC are indeed more sensitive to interpersonal closeness with the trustee when making trust judgments (i.e., they trust close others more than they trust distant others) and that higher NFC causes one's established levels of trust to be more persistent even in the presence of actual trustworthiness feedback.

Overall, our findings essentially overlap with previous conceptualizations of trust as a complexity-reducing tool (e.g., Good, 1988; Kollock, 1994; Luhmann, 1979; Yamagishi et al., 1998). However, our findings also indicate that *the level of trust* individuals place in others is driven by their need to reduce complexity or uncertainty, which is proxied by their need for closure. Given the importance of trust, we believe that the findings presented in this paper are of considerable interest to a number of scholars interested in the drivers of trust.

### **Implications for real-life situations**

The research findings reported in this paper have several implications for real-life situations. The main finding of the paper – that NFC polarizes the effect of interpersonal closeness on trust – implies that one can predict a trustor's level and rigidity of trust in a trustee by assessing or manipulating the trustor's NFC and the interpersonal closeness between the trustor and the trustee.

As noted previously, NFC can be measured as a stable personality trait via established scales. Alternatively, NFC can be situationally induced through manipulations that increase the benefits of possessing closure, such as noise (Kruglanski & Webster, 1996), mental fatigue (Webster et al., 1996), and/or time pressure (De Dreu, 2003; Heaton & Kruglanski, 1991; Jost et al., 1999; Kruglanski & Freund, 1983; Pierro et al., 2003; Shah et al., 1998). Specifically, when there is noise in the environmental, when mental fatigue increases, or when time pressure is high, individuals may be more prone to polarized and persistent trust judgments. In other words, they may have high or low, but not moderate, levels of trust (depending on their perceived interpersonal closeness with the trustee), and these levels will be difficult to alter. Under conditions that foster high NFC, individuals might fail to adjust the level of trust as a result of subsequent trustworthiness information, such as trustworthy behavior shown by a stranger or untrustworthy behavior shown by a close other. On the other hand, when there is no noise in the environment, when mental fatigue decreases, or when time pressure is low, individuals may tend to make moderate trust judgments, which may easily change in the light of new information regarding the actual trustworthiness of the trustee.

Perceptions of interpersonal closeness may be manipulated as well. The same trustee may be perceived to be closer or more distant depending on the trustor's point of reference; for example, a colleague may be perceived as more distant when compared to a close friend but as closer when compared to a stranger. Perceptions of interpersonal closeness may even be altered through subtle manipulations of incidental similarity (e.g., sharing a birth date or initials); this is because similarity induces a sense of social connection, thus increasing perceived interpersonal closeness (Jiang, Hoegg, Dahl, & Chattopadhyay, 2010). Hence, a high NFC trustor's level of trust in a trustee may be altered by changing the trustor's perception of interpersonal closeness with that trustee.

### **Future research directions**

These findings have several implications for future research. The first area to be considered for future studies involves extrapolating whether the polarizing effect of NFC on the relationship between social distance (i.e., interpersonal closeness) and trust applies to other types of psychological distance. Even though our research focused exclusively on the interpersonal closeness between the trustor and the trustee, construal level theory (Liberman & Trope, 1998, 2003) suggests that social distance (e.g., level of interpersonal closeness) and other dimensions of psychological distance (e.g., spatial and temporal distance and hypotheticality) have similar effects on cognition; that is, the more distant an entity is from an individual psychologically, the higher and more abstract will be the level at which that entity is construed, whereas closer entities are construed at a lower, more concrete level. This happens because, as people move away from the direct experience of things, they possess less information and thus experience more uncertainty about those things (Trope & Liberman, 2010). Accordingly, high, but not low, NFC can be expected to be associated with higher trust in a trustee at a lower psychological distance than in a trustee at a higher psychological distance from the trustor. For instance, based on construal level theory, individuals with high, but not low, NFC should have higher trust in a trustee when the trustee is physically close to them than when the same trustee is physically distant from them. Similarly, high, but not low, NFC should be associated with higher trust when a trust-related issue takes place in the near future versus when the same issue takes place in the distant future. To the best of the authors' knowledge, these are novel hypotheses. Accordingly, further work is required to test whether these predictions indeed hold.

Second, it would be interesting to explore the societal consequences of the polarizing effect of NFC on trust. The current findings may complement previous findings on the positive relationship between heightened NFC and conservative values. That is, trust may indeed be the underlying mechanism for many conservative social consequences of NFC. For

instance, people with high NFC may display increased in-group favoritism, right-wing attitudes, out-group derogation, and other conservative attitudes as a result of their low trust in out-group members. Hence, future work can examine whether trust (or lack of trust) contributes to high NFC individuals' conservative mindset.

Third, along with the study of trust, the study of trustworthiness – that is, the willingness of a trustee to honor a trustor's trust – is an important topic that is worthy of investigation. Relationships may fail in the absence of trustworthiness (Lahno, 1995). Therefore, for a mutually beneficial relationship, trust appears to be a necessary but not a sufficient condition; in order to be sufficient, it should be reciprocated with trustworthiness. Because we studied trust only on the part of the trustor in this paper, we were unable to make any concrete value judgments about the adequacy of trustors' trust judgments, as the validity of one's trust in another can be judged only in the light of the trustee's trustworthiness. Any discussion of trust, however, raises questions of whether a trustor's trust is adequate (i.e., whether trust begets trustworthiness).

One can speculate that the seizing and freezing behaviors exhibited by high NFC people in response to closeness cues might in general be a time-saving, efficient decision rule; indeed, the stereotype accuracy literature (e.g., Gigerenzer & Brighton, 2009) and the fast and frugal heuristics literature (e.g., Ryan, 2002) indicate that decisional shortcuts may generally be efficient and accurate. The success of seizing and freezing on closeness cues, however, might be derailed when actually malevolent trustees are perceived as close or, conversely, when benevolent ones are seen as distant. Indeed, the persuasion literature is replete with work showing that simply “mimicking” closeness (by presenting oneself as similar or likeable) produces acquiescence and yielding (Cialdini, 2009), and this effect may be even more pronounced among high NFC individuals. When such similarity is feigned by professional influence agents, such as sales agents or politicians, the ensuing trust placed in

them by high NFC individuals might well be misplaced. Hence, based on the present results, one can speculate that the trust judgments of high NFC individuals may have both an upside and a downside, allowing both for general and quick accuracy and for errors in interpersonal judgment. Therefore, the findings of this paper may be extended by studying the validity of trustors' trust judgments through an examination of trustees' trustworthiness.

## **Conclusion**

In conclusion, the findings of the present research provide insight regarding the study of trust from a social-motivational perspective. Our studies demonstrated that individuals' social-cognitive motivation to manage uncertainty, which is captured by their NFC, is an important driver of trust and has a polarizing effect on their trust in others. Individuals with high, but not low, NFC tend to have polarized (i.e., very low or to very high) trust judgments in social interactions, depending on the social distance between the trustor and the trustee. That is, compared to individuals with low NFC, individuals with high NFC have an exaggerated tendency to put high trust in close others and low trust in distant others. Furthermore, the findings also suggest that individuals with high NFC have difficulties overcoming their initial high or low trust judgments even in the presence of actual trustworthiness feedback.

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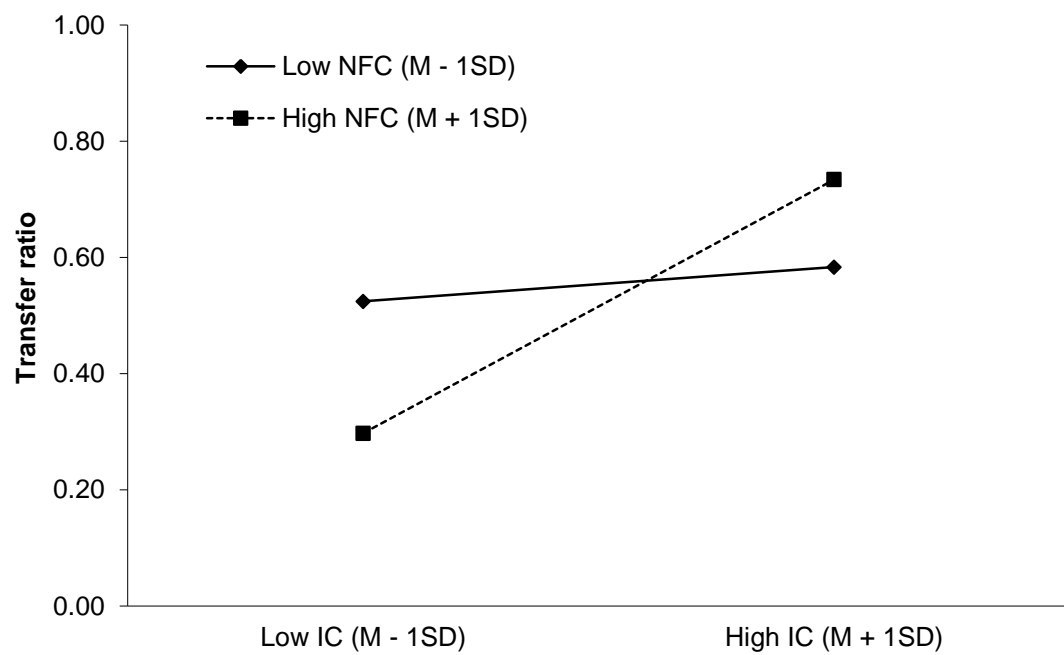
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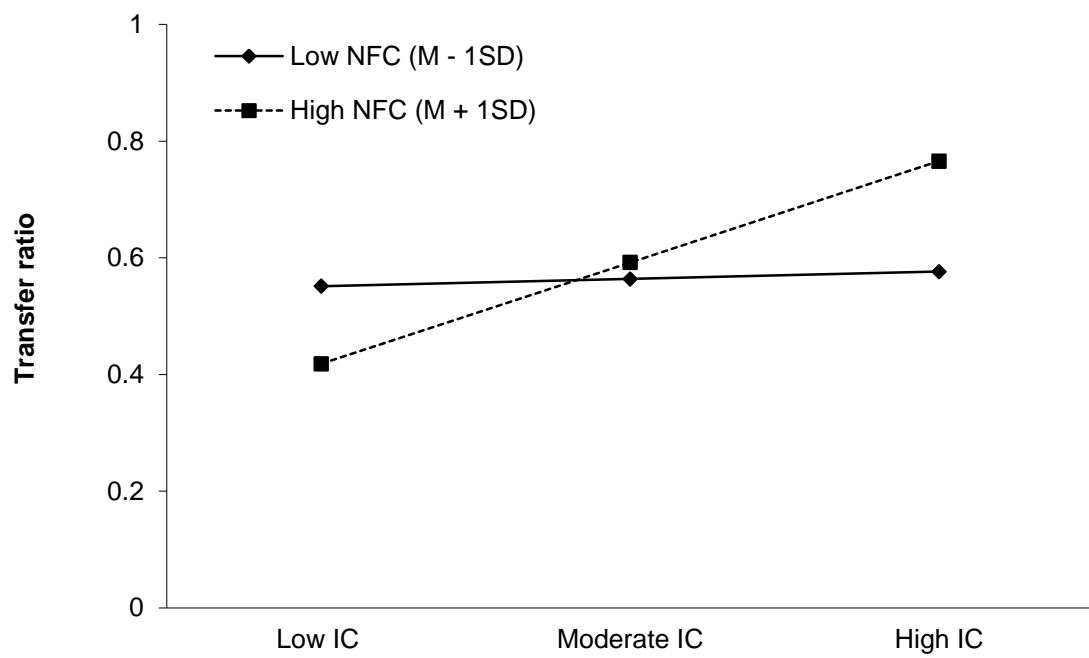
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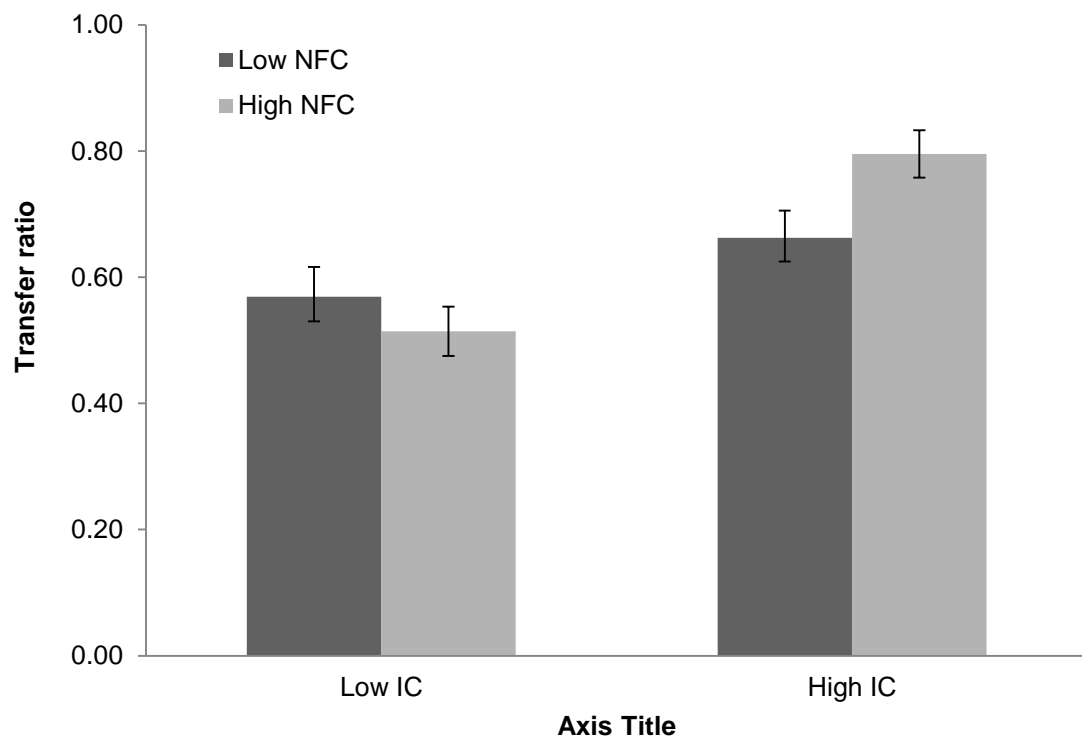




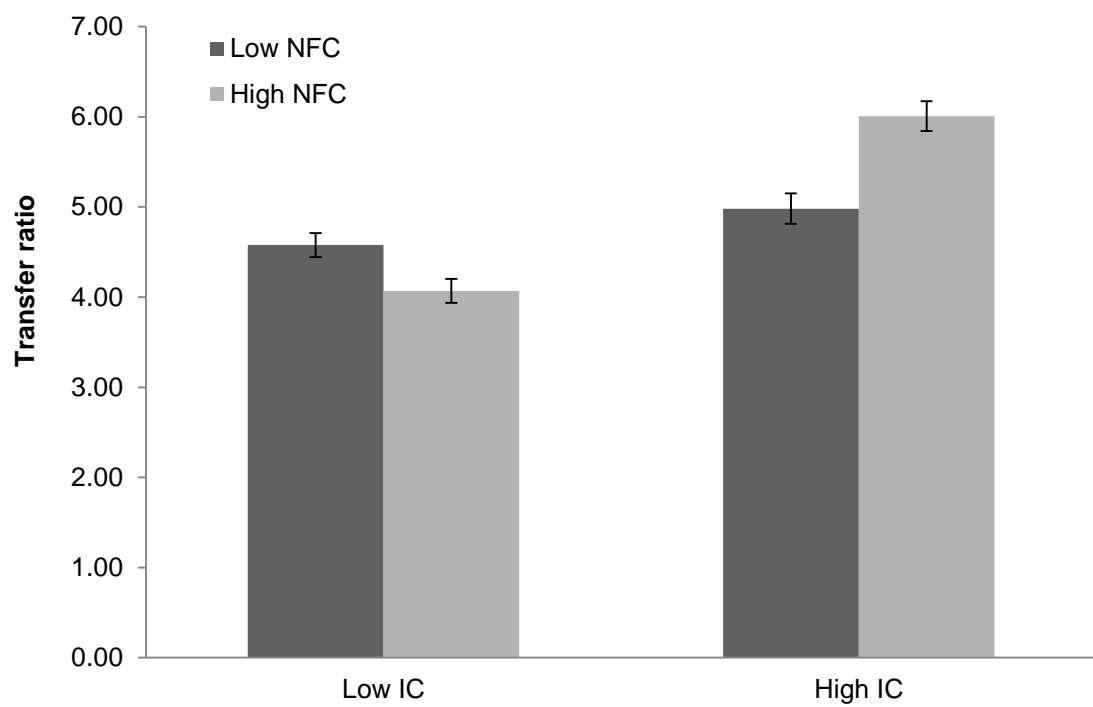
*Figure 1.* Transfer ratio as a function of need for closure (NFC) and interpersonal closeness (IC) in Study 2. Note: Higher transfer ratio indicates higher trust.



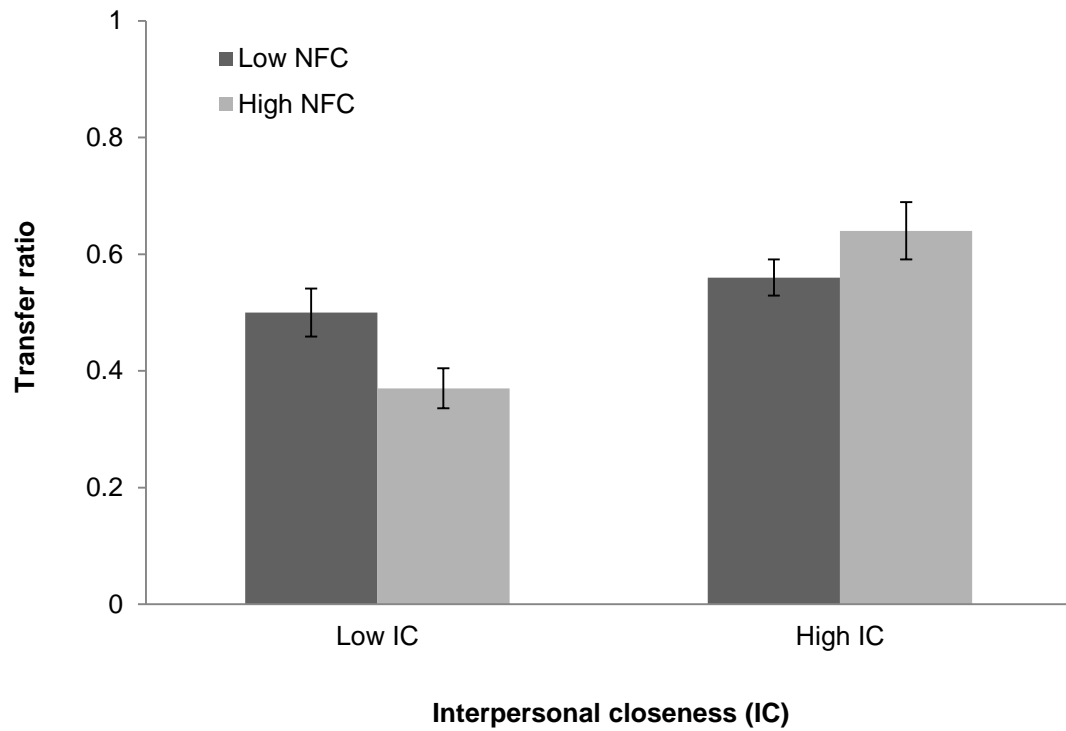
*Figure 2.* Transfer ratio as a function of need for closure (NFC) and interpersonal closeness (IC) in Study 3. Note: Higher transfer ratio indicates higher trust.



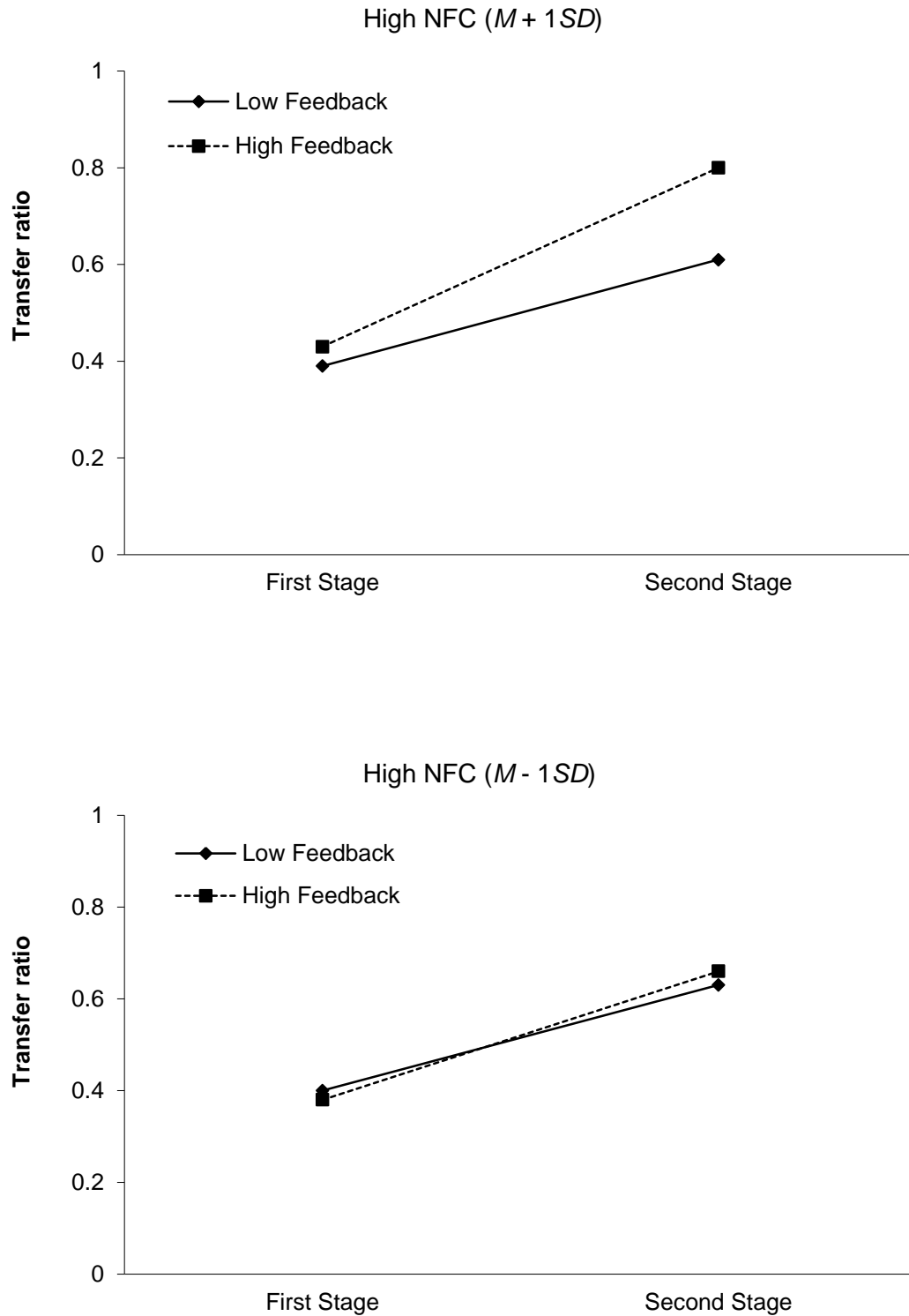
*Figure 3.* Transfer ratio as a function of need for closure (NFC) and interpersonal closeness (IC) in Study 4. Note: Higher transfer ratio indicates higher trust. Error bars represent standard error of the mean.



*Figure 4.* Self-reported trust as a function of need for closure (NFC) and interpersonal closeness (IC) in Study 4. Error bars represent standard error of the mean.



*Figure 5.* Transfer ratio as a function of need for closure (NFC) and interpersonal closeness (IC) in Study 5. Note: Higher transfer ratio indicates higher trust. Error bars represent standard error of the mean.



*Figure 6.* Transfer ratio in the first and second stage of the investment game as a function of trustworthiness feedback for high need for closure (NFC) and for low NFC participants in Study 6. Note: Higher transfer ratio indicates higher trust.

## Appendix

### Investment Game

The following task requires you to make a decision in a hypothetical investment game. In this game, you are randomly and anonymously paired with another person, who is also participating in this study. This other person will not be identified either now or later.

The investment game involves two people: the investor and the broker. You are the investor, and your anonymous partner is the broker. The investment works as follows.

You start with \$100. From this amount, you may send \$0, \$20, \$40, \$60, \$80, or \$100 to the broker. The amount you decide to send will be tripled; for example, if you send \$20, the broker will receive \$60, and so on.

If you have sent money to the broker, the broker may then choose to send all, some, or none of the money he or she received back to you. (Remember that the broker will have received three times the amount you sent.) The broker can send any amount to you that he or she wishes, but the amount the broker sends will not be increased in any way; for example, if the broker sends \$20, you will receive \$20. The broker will also know all the rules that you know. There will be no secrets.

Now, it is time to make your investment decision. How much of your \$100 would you like to send to the broker?

(Adapted from Berg et al., 1995.)

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